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Thanh LAM

Art Unit
2834

Invention Title
ELECTRIC MOTOR

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Commissioner for Patents
Washington D.C. 20231

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Signature: [Signature]
Jong H. Lee

Further to the Notice of Appeal dated November 19, 2002 (filed at the PTO on November 27, 2002) in the above-referenced application, enclosed are three copies of an Appeal Brief. Accompanying the Appeal Brief is the Appendix to the Appeal Brief. A two-month extension of time to file the Appeal Brief is requested. The extended period expires on March 27, 2003.

The Commissioner is hereby authorized to charge payment of the 37 C.F.R. § 1.17(c) appeal brief filing fee of **\$320.00**, a two-month extension fee of **\$410**, and any additional fees associated with this communication to the deposit account of **Kenyon & Kenyon**, deposit account number **11-0600**.

Dated: 3/26, 2003

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[10191/1726]

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant : Hans KOBSCHAETZKY
Serial No. : 09/762,793
Filing Date : April 10, 2001
For : ELECTRIC MOTOR
Examiner : Thanh LAM
Art Unit : 2834
Confirmation No. : 1130

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APPELLANT'S APPEAL BRIEF
UNDER 37 C.F.R. § 1.192

S I R :

Applicant filed a Notice of Appeal dated November 19, 2002 (filed at the PTO on November 27, 2002), appealing from the Final Office Action dated July 26, 2002, in which claims 7-16 of the above-identified application were finally rejected. This Brief is submitted by Applicant in support of his appeal.

I. REAL PARTY IN INTEREST

The above-identified Applicant and Robert Bosch GmbH of Stuttgart, Germany, are the real parties in interest.

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II. RELATED APPEALS AND INTERFERENCES

No appeal or interference which will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal is known to exist to the undersigned attorney or is believed by the undersigned attorney to be known to exist to Applicant.

III. STATUS OF CLAIMS

Claims 7-16 are pending in this application. Applicant appealed from the final rejection of claims 7-16 made in the final Office Action mailed by the Patent Office on July 26, 2002. Of the claims presently on appeal, claims 7, 12 and 16 are independent; claims 8-11 ultimately depend from claim 7; and claims 13-15 ultimately depend from claim 12. The claims on appeal are set forth in the Appendix submitted herewith.

IV. STATUS OF AMENDMENTS

An Amendment was mailed on September 20, 2002 in response to the final Office Action dated July 26, 2002. In the Advisory Action mailed on October 25, 2002, the Examiner indicated that the Amendment will be entered for the purposes of Appeal.

V. SUMMARY OF THE INVENTION

The present invention provides an electric motor enclosed in a housing, which motor has an armature shaft and an armature-shaft bearing (26) which is retained axially in a bearing seat (32) of the housing by a detent or snap-fit connection (34, 36). (P. 2, l. 3-13).

As shown in Figure 1, electric motor 10 of the present invention is provided for driving a window washer of a motor vehicle via a worm gear. Electric motor 10 has an armature 12 with an armature shaft 14 which is rotationally mounted in a motor housing 16 (pole pot), and flange-mounted co-axially on motor housing 16 is a worm housing 18 which is likewise part of the motor housing.

(P. 5, l. 11-15). At a bottom 20 of pot-type motor housing 16, a hollow-cylindrical formation forms a bearing seat 22 into which a plain bearing is pressed as armature-shaft bearing 24; armature shaft 14 is rotationally mounted with its one end in armature-shaft bearing 24. (P. 5, l. 17-21).

On the other side of armature 12, electric motor 10 has a further armature-shaft bearing 26 which is likewise formed as a plain bearing. (P. 5, l. 23-25). This armature-shaft bearing 26 is rotationally disposed on armature shaft 14 between the armature, i.e., between a commutator 28 of armature 12 and a worm 30 which is in one piece with armature shaft 14. (P. 5, l. 25-29). Worm 30 is produced by reforming by rolling armature shaft 14 at its one end, and worm 30 has a larger outside diameter than armature shaft 14 on its remaining length, so that armature-shaft bearing 26 must be mounted on armature shaft 14 prior to producing worm 30. (P. 5, l. 29-35).

Armature-shaft bearing 26 mounted on armature shaft 14, together with armature shaft 14 upon which the entire armature 12 including commutator 28 is mounted, is inserted into a bearing seat 32 formed as a hollow-cylindrical section of worm housing 18. (P. 5, l. 36 - p. 6, l. 4). Armature-shaft bearing 26 is retained axially in bearing seat 32 by one or even a plurality of detent elements 34 distributed over the periphery. (P. 6, l. 4-7). Detent element 34 has a spring tab, likewise designated by 34, which laps paraxially over armature-shaft bearing 26 at the periphery, and which has a detent projection 36 at its free end which grips armature-shaft bearing 26 from behind at an end face facing armature 12 and thereby retains it axially in bearing seat 32. (P. 6, l. 7-13). When inserting armature-shaft bearing 26 into bearing seat 32, detent element 34 is pressed elastically to the side by armature-shaft bearing 26, as indicated in Figure 1 with dotted lines. (P. 6, l. 13-16). After armature-shaft bearing 26 has gotten over detent projection 36 of detent element 34, detent element 34 springs back into its starting position in which detent projection 36 retains armature-shaft bearing 26 axially in bearing seat 32. (P. 6, l. 16-21).

To be able to press armature-shaft bearing 26 into bearing seat 32, a spacer sleeve 38 is mounted on armature shaft 14 between commutator 28 and armature-shaft bearing 26. (P. 6, l. 23-26). Thus, armature-shaft bearing 26, together with armature 12 upon whose armature shaft 14 it is mounted, is pressed into bearing seat 32 until detent element 34 snaps into place. (P. 6, l. 26-29). Therefore, bearing seat 32 does not have to be accessible in order to insert armature-shaft bearing 26. (P. 6, l. 29-31). After detent element 34 has snapped into place on armature-shaft bearing 26, armature 12 is withdrawn axially for a short stretch, thus forming an axial clearance between spacer sleeve 38 and armature-shaft bearing 26. (P. 6, l. 31-35).

In order to fix armature shaft 14 axially in position in motor and worm housing 16, 18, bearing seat 32, on the side of armature 12 facing away from commutator 28, has on its end wall an inward formation which forms an axial one-direction thrust bearing 40 for armature shaft 14. (P. 6, l. 37 - p. 7, l. 4).

At the opposite end face of armature shaft 14, on which worm 30 is premolded, worm housing 14 has a longitudinal-play stop 42 which fixes armature shaft 14 in motor and worm housing 16, 18 with or without axial play. (P. 7, l. 6-9). Longitudinal-play stop 42 is produced by reforming, e.g., using a stamp die. (P. 7, l. 10-11). Longitudinal-play stop 42 is first produced after armature-shaft bearing 26, disposed between commutator 28 and worm 30, has been inserted into bearing seat 32, so that sufficient free space exists in the axial direction for armature shaft 14 in order to insert armature-shaft bearing 26. (P. 7, l. 11-16). The axial play of armature shaft 14 can be set exactly to a designated value, which can also be zero, by longitudinal-play stop 42 which is subsequently produced by reforming. (P. 7, l. 16-20).

In an alternative embodiment of the invention shown in Figure 2, armature-shaft bearing 32, disposed between commutator 28 and worm 30, is fixed axially in position in bearing seat 32 by a circumferential, inward-projecting collar

44. (P. 7, l. 22-26). Collar 44 is produced by reforming worm housing 18 after armature-shaft bearing 26 has been inserted into bearing seat 32. (P. 7, l. 26-28). Collar 44 can be formed circumferentially, e.g., using pressure roller 46 indicated with dotted lines. (P. 7, l. 28-30). Instead of a circumferential collar 44, reforming can also be carried out at only one or several locations on the periphery of bearing seat 32. (P. 7, l. 30-32).

In another alternative embodiment of the invention shown in Figure 3, armature-shaft bearing 26, disposed between commutator 28 and worm 30, has depressions 48 at its outer surface. (P. 7, l. 34-37). Material 50 of bearing seat 32 is worked into these depressions 48, e.g., using stamp 52 indicated in Figure 3 with dotted lines, and armature-shaft bearing 26 is thereby fixed axially in position in bearing seat 32. (P. 7, l. 37 - p. 8, l. 4). Since stamp 52 in Figure 3, as well as pressure roller 46 in Figure 2, are applied from the outside, bearing seat 32 does not have to be accessible in order to insert and fix armature-shaft bearing 26 in position. (P. 8, l. 4-7). The reforming of bearing seat 32 in order to fix armature-shaft bearing 26 axially in position, as well as the reforming of longitudinal-play stop 42 can, for example, be effected thermally by ultrasonics, by cold-forming or the like. (P. 8, l. 8-12).

VI. ISSUES FOR REVIEW

The following issues are presented for review on appeal in this case:

A) Whether the subject matter of claim 16 is unpatentable under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time of the application was filed, had possession of the claimed invention.

B) Whether the subject matter of claims 7-8 and 16 is anticipated under 35 U.S.C. § 102(b) by Rainer et al. (DE 44 22 492 A1).

C) Whether the subject matter of claims 12-13 is anticipated under 35 U.S.C. § 102(b) by Matsushita et al. (U.S. Patent 5,129,740).

D) Whether the subject matter of claims 9-11 is unpatentable under 35 U.S.C. § 103(a) over Rainer et al. (DE 44 22 492 A1) in view of Mackay et al. (U.S. Patent 5,485,044).

E) Whether the subject matter of claims 14-15 is unpatentable under 35 U.S.C. § 103(a) over Matsushita et al. (U.S. Patent 5,129,740) in view of Mackay et al. (U.S. Patent 5,485,044).

VII. GROUPING OF CLAIMS

For each ground of rejection, all rejected claims will be argued as one group, with the following exception: for the anticipation rejection of claims 7, 8 and 16, all claims do not stand or fall together, and claims 7 and 8 will be argued separately from claim 16.

VIII. ARGUMENTS

A. REJECTION OF CLAIM 16 UNDER 35 U.S.C. §112, ¶1

Claim 16 has been rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification so as to convey to one skilled in the art that the inventor was in possession of the claimed invention at the time of filing of the application. In particular, the Examiner asserts that the phrase "inaccessible bearing seat" is not described in the specification and drawings. Applicant respectfully submits that the disclosure of the present invention clearly describes, in a manner that would be readily understood by those skilled in the art, how the bearing seat can be "inaccessible."

Initially, Applicant notes that there is no requirement that claimed elements must be described *in haec verba*, in the specification, and support may be implicit or inherent in the specification. (See M.P.E.P. 2163). Regarding the "inaccessible bearing seat" limitation, the specification repeatedly sets forth that "the bearing seat does not have to be accessible for inserting the armature-shaft bearing, since the armature-shaft bearing is automatically secured axially in the bearing seat of the housing." (See, e.g., Specification, page 2, lines 19-23). This

feature of inaccessibility is further described on page 6, lines 23-35:

To be able to press armature-shaft bearing 26 into bearing seat 32, a spacer sleeve 38 is mounted on armature shaft 14 between commutator 28 and armature-shaft bearing 26. Thus, armature-shaft bearing 26, together with armature 12 upon whose armature shaft 14 it is mounted, is pressed into bearing seat 32 until detent element 34 snaps into place. **Therefore, bearing seat 32 does not have to be accessible in order to insert armature-shaft bearing 26.** After detent element 34 has snapped into place on armature-shaft bearing 26, armature 12 is withdrawn axially for a short stretch, thus forming an axial clearance between spacer sleeve 38 and armature-shaft bearing 26. (Emphasis added).

Similarly, with respect to the alternative embodiment illustrated in Fig. 3, the specification provides that:

In the altered specific embodiment of the invention shown in Figure 3, armature-shaft bearing 26, disposed between commutator 28 and worm 30, has depressions 48 at its outer surface. Material 50 of bearing seat 32 is worked into these depressions 48, e.g., using stamp 52 indicated in Figure 3 with dotted lines, and armature-shaft bearing 26 is thereby fixed axially in position in bearing seat 32. Since stamp 52 in Figure 3, as well as pressure roller 46 in Figure 2, are applied from the outside, **bearing seat 32 does not have to be accessible in order to insert and fix armature-shaft bearing 26 in position.** (Page 7, line 34 to page 8, line 7 (emphasis added)).

The above-quoted passages of the specification clearly indicate (at the least, inherently) how the present invention achieves the advantage over the related art, i.e., an installation opening in the housing is not required in order to axially secure the armature-shaft bearing in the bearing seat. (See Specification, page 1, lines 24-31). Given the clear description of the claimed feature in the specification, it is respectfully submitted that those skilled in the art would readily acknowledge that Applicant was in possession of an electric motor having a housing with an

"inaccessible bearing seat" at the time the application was filed.

For the foregoing reasons, reversal of the rejection of claim 16 under 35 U.S.C. §112, first paragraph, is respectfully requested.

B. REJECTION OF CLAIMS 7, 8 and 16 UNDER 35 U.S.C. §102(b)

Claims 7, 8 and 16 have been rejected under 35 U.S.C. §102(b) as being anticipated by German Published Patent Application No. 4422492 to Rainer et al. (Rainer). The rejection should be reversed for at least the following reasons.

Independent claim 7 recites an armature-shaft bearing situated in the bearing seat of the housing, which bearing is retained axially in the bearing seat by one of a detent and a snap-fit connection and by a portion of the bearing seat.

In the Final Office Action, the Examiner asserts that Figure 2 of Rainer discloses an armature-shaft bearing (32) that is retained by one of a detent and a snap projection (35) and by a portion of the bearing seat. In this analysis, the Examiner equates the claimed "bearing seat" with an inner side of the tab used for the detent (33) as disclosed in Rainer. Applicant respectfully submits that the inner side of the tab (33) disclosed in Rainer is not equivalent to the claimed "bearing seat," and that the inner side of the tab disclosed in Rainer does not axially retain the armature-shaft bearing. Therefore, Rainer does not disclose or suggest each of the features of claim 7.

As illustrated in the embodiment shown in Figure 1 of the present invention, the armature-shaft bearing (26) is restrained axially, i.e., from moving up or down along the axis of the motor, by both the snap-fit connection provided by the detent element (34, 36) which prevents movement downward, and also by the bearing seat (32) which abuts the top of the armature-shaft bearing and thereby prevents its upward movement. In contrast, Rainer does not disclose this feature, and there is no corresponding **bearing seat** element that restricts the

upward movement of the armature-shaft bearing; instead, there is shown a washer between elements (32) and (16) for restricting upward, i.e., axial, movement of the armature-shaft bearing, which washer is a structural device that the present invention is explicitly designed to avoid. (See Specification, page 1, lines 18-23). At the least, the "inner side of the tab used for the detent (33)" disclosed in Rainer fails to axially retain the bearing in the bearing seat, in contrast to the claimed limitation of claim 7.

For at least the above reasons, it is respectfully submitted that Rainer does not anticipate claim 7, or claim 8 which depends from claim 7.

As regards independent claim 16, it recites a housing having an **inaccessible** bearing seat. Since, as noted above, the armature-shaft bearing disclosed in Rainer is restrained axially by a washer element, whatever bearing seat exists in Rainer must be accessible in order to place the washer in position. Again, the Background section of the specification clearly indicates that present invention is designed to avoid use of a washer so that the armature-bearing can be fitted into housings for which the bearing seat is inaccessible. Therefore, Rainer merely discloses the related art having the problem that the present invention solves.

Accordingly, it is respectfully submitted that Rainer does not anticipate independent claim 16. Reversal of the rejection of claims 7, 8 and 16 under 35 U.S.C. §102(b) is therefore respectfully requested.

C. REJECTION OF CLAIMS 12-13 UNDER 35 U.S.C. §102(b)

Claims 12 and 13 have been rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 5,129,740 to Matsushita et al. (Matsushita). The rejection should be reversed for at least the following reasons.

Independent claim 12 recites an electric motor having an armature-shaft bearing situated in the bearing seat of the housing, the armature-shaft

bearing being fixed in position in the bearing seat by a tamping. In the Final Office Action, the Examiner asserts that "a tamping" is a process for forming the device and is not germane to the issue of patentability itself, and that therefore this feature has not been given patentable weight. It is respectfully submitted that the feature of "the armature-shaft bearing being fixed in position in the bearing seat by a tamping" as used in claim 12 is clearly pertinent to defining a structural limitation and therefore should be given patentable weight.

It is understood that apparatus claims cover what a device is, not what a device does. See MPEP §2114 (quoting Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469 (Fed. Cir. 1990)). However, functional language is not, in and of itself, improper, and a **"functional limitation must be evaluated and considered, just like any other limitation** of the claim." M.P.E.P. 2173.05(g). Claim 12 recites that the armature-shaft bearing is "fixed in position in the bearing seat by a tamping." While one meaning of "tamping" refers to the process of creating a protruding section in the housing, the claim language inherently indicates to those skilled in the art that the bearing is fixed in place not merely by the tamping process itself, but by the **structures** that result from tamping, i.e., inwardly-projecting protrusions formed by application of pressure which restrain axial movement of the armature-shaft bearing. (See Specification, p. 3, l. 7-13). Accordingly, the phrase "the armature-shaft bearing being fixed in position in the bearing seat by a tamping" must be properly construed as defining a structural limitation and therefore should be given patentable weight. Indeed, the specification clearly indicates in Figures 2 and 3 and accompanying text the structural features associated with a tamping of the housing, i.e., the collar 44 shown in Fig. 2, and the depressions 48 shown in Figure 3. Since claim terms are given their broadest reasonable meaning as they would be understood by one of ordinary skill in the art, taking into account the written description, see In re Morris, 127 F.3d 1048 (Fed. Cir. 1997), it is respectfully submitted that those skilled in the art would clearly understand that the phrase "fixed in position in the bearing seat by a tamping" indicates the presence of a structural feature associated

with, and resulting from, a tamping process.

While Matsushita may depict a groove on the external side of a bearing element, Matsushita clearly does not show a tamping that fixes the armature-bearing axially in position in the bearing seat; instead, Matsushita states that "the bearing . . . has a pressed groove formed as a pressing mark on the outer circumferential surface of the bearing support." (Matsushita, col. 2, lines 64-68, emphasis added). Furthermore, while Matsushita uses a pressed groove to reduce a radial clearance between a shaft bearing and an armature, the tamping recited in claim 12 goes further to fix the axial position of the armature, due to the fact that the armature bearing cannot move past the tampings.

In view of the above, it is respectfully submitted that Matsushita does not anticipate claim 12 or claim 13 which depends from and further limits claim 12. Reversal of the rejection of claims 12 and 13 under 35 U.S.C. §102(b) is therefore respectfully requested.

D. REJECTION OF CLAIMS 9-11 UNDER 35 U.S.C. §103(a)

Claims 9-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Rainer in view of United States Patent No. 5,485,044 to Mackay et al. (Mackay). The rejection should be reversed for at least the following reasons.

Claims 9-11 depend from independent claim 7. It is respectfully submitted that both Mackay and Rainer fail to disclose or suggest an armature-shaft bearing being retained axially in the bearing seat by one of a detent and a snap-fit connection and by a portion of the bearing seat. While the Examiner equates the claimed "bearing seat" with an inner side of the tab used for the detent (33) as disclosed in Rainer, Applicant notes that the inner side of the tab (33) disclosed in Rainer is not equivalent to the claimed "bearing seat," and that the inner side of the tab disclosed in Rainer does not axially retain the armature-shaft bearing. Furthermore, as shown in Mackay Figure 2, the armature bearing 70 is

not retained axially by a portion of the bearing seat; instead, there is a space directly above the bearing 70 permitting movement of the bearing toward the gear end.

Since the combination of Rainer and Mackay does not teach or suggest each of the elements of independent claim 7, the combination also does not teach or suggest each of the elements of claims 9-11 which depend from claim 7. Accordingly, reversal of the obviousness rejection of claims 9-11 under 35 U.S.C. §103(a) is respectfully requested.

E. REJECTION OF CLAIMS 14-15 UNDER 35 U.S.C. §103(a)

Claims 14 and 15 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Matsushita in view of Mackay. The rejection should be reversed for at least the following reasons.

Claims 14 and 15 depend from and incorporate the features of independent claim 12. It is respectfully submitted that Matsushita and Mackay fail to disclose or suggest an armature-shaft bearing situated in the bearing seat of the housing which is fixed in position in the bearing seat by a tamping, as recited in parent claim 12.

Initially, it is respectfully submitted that the feature of "the armature-shaft bearing being fixed in position in the bearing seat by a tamping" as used in claim 12 is clearly pertinent to defining a structural limitation and therefore should be given patentable weight. While one meaning of "tamping" refers to the process of creating a protruding section in the housing, the claim language inherently indicates to those skilled in the art that the bearing is fixed in place not merely by the tamping process itself, but by the **structures** that result from tamping, i.e., inwardly-projecting protrusions formed by application of pressure which restrain axial movement of the armature-shaft bearing. (See Specification, p. 3, l. 7-13). Accordingly, the phrase "the armature-shaft bearing being fixed in position in the

bearing seat by a tamping" must be properly construed as defining a structural limitation and therefore should be given patentable weight. Indeed, the specification clearly indicates in Figures 2 and 3 and accompanying text the structural features associated with a tamping of the housing, i.e., the collar 44 shown in Fig. 2, and the depressions 48 shown in Figure 3.

While Matsushita may depict a groove on the external side of a bearing element, Matsushita clearly does not show a tamping that fixes the armature-bearing axially in position in the bearing seat; instead, Matsushita states that "the bearing . . . has a pressed groove formed as a pressing mark on the outer circumferential surface of the bearing support." (Matsushita, col. 2, lines 64-68, emphasis added). Furthermore, while Matsushita uses a pressed groove to reduce a radial clearance between a shaft bearing and an armature, the tamping recited in claim 12 goes further to fix the axial position of the armature, due to the fact that the armature bearing cannot move past the tamplings. Furthermore, Mackay does not refer to or even suggest any type of inwardly-protruding structures in relation to an armature bearing element.

Since the combination of Matsushita and Mackay does not teach or suggest each of the elements of parent claim 12, the combination also does not teach or suggest each of the elements of claims 14 and 15, which depend from claim 12. Accordingly, reversal of the obviousness rejection of claims 14 and 15 under 35 U.S.C. §103(a) is respectfully requested.

IX. CONCLUSION

For the foregoing reasons, it is respectfully submitted that the final rejection of claims 7-16 should be reversed.

Respectfully submitted,

KENYON & KENYON

Dated: 3/26, 2003

By:

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